

Enhancing Anesthesia, Laboratory Services, Nursing, Emergency Care, Pharmacy, Health Administration, Health Informatics, Health Security, and Revenue Generation in Contemporary Medical Practices

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Abstract: In contemporary medical practices, the integration of anesthesia, laboratory services, nursing, emergency care, pharmacy, health administration, health informatics, health security, and revenue generation is essential for delivering high-quality patient care. Enhancing anesthesia practices through advanced techniques and monitoring systems significantly improves patient outcomes during surgical procedures. Meanwhile, laboratory services play a critical role in accurate diagnostics and timely treatment decisions. The collaboration between nursing professionals and pharmacists ensures that patients receive optimal medication management and adherence support. Furthermore, effective health administration is vital for coordinating multidisciplinary teams, managing resources efficiently, and navigating regulatory challenges while ensuring patient safety and satisfaction. Health informatics strengthens these interconnected fields by leveraging technology to improve the flow of information, enhance clinical decision-making, and streamline operations. By implementing electronic health records and data analytics, healthcare providers can identify trends, monitor performance, and enhance overall service delivery. In addition, health security measures are increasingly important in safeguarding patient

information and maintaining service continuity. Finally, focusing on revenue generation through efficient practices, such as cost management and patient engagement strategies, is crucial for sustaining healthcare organizations in an ever-evolving landscape. By emphasizing these elements, healthcare providers can create a robust framework that promotes both quality care and financial viability.

Keywords: Anesthesia, Laboratory Services, Nursing, Emergency Care, Pharmacy, Health Administration, Health Informatics, Health Security, Revenue Generation

Introduction:

The complexities of modern medical practices necessitate an integrative approach toward enhancing various facets of healthcare delivery, including but not limited to anesthesia, laboratory services, nursing, emergency care, pharmacy, health administration, health informatics, health security, and revenue generation. The intersectionality of these domains plays a critical role in ensuring optimal patient outcomes, improving operational efficiency, and maximizing the financial viability of healthcare organizations. As the healthcare landscape continues to evolve due to rapid advancements in technology, regulatory changes, and shifting patient demographics, it becomes imperative for medical practitioners and administrators alike to adopt a holistic perspective aimed at improving various components of care [1].

The last few decades have witnessed staggering developments in medical science and technology, fundamentally altering the way healthcare is delivered. These advancements range from the implementation of electronic health records (EHR) to the utilization of telemedicine, all of which have reshaped the patient-provider dynamic. As the aging population increases and chronic illnesses become more prevalent, the demand for efficient and effective medical services inevitably grows [2]. According to the World Health Organization (WHO), by 2050, the global population of individuals aged 60 years and older is projected to reach 2 billion, thereby necessitating comprehensive approaches in medical practices that not only enhance service delivery but also maintain the sustainability and financial health of healthcare organizations [3].

Anesthesia, an essential component of surgical procedures, plays a vital role in patient safety and comfort during operations. Recent innovations such as advanced monitoring systems and anesthetic techniques have improved the overall safety profile of anesthesia care. Research indicates that errors in

anesthesia can lead to significant morbidity and mortality if not adequately addressed. Hence, enhancing the training and skills of anesthesia providers through simulation-based education, standardized protocols, and continuous professional development is paramount in safeguarding patient safety and improving perioperative outcomes [4].

Laboratory services are the backbone of diagnostic medicine, providing critical data that informs clinical decision-making. Enhancements in laboratory technology, such as the development of point-of-care testing and the integration of artificial intelligence in diagnostic processes, have the potential to reduce turnaround times and enhance the accuracy of results. Streamlining operations through lean management principles and adopting automation can lead to significant improvements in service delivery. Moreover, strengthening cross-departmental collaboration can ensure that laboratory findings are effectively communicated and utilized in patient care, ultimately leading to better health outcomes [5].

Nurses constitute the largest segment of the healthcare workforce and are integral to the delivery of quality patient care. Enhancing nursing practice involves not only ongoing education and training but also empowering nurses through greater autonomy in clinical decision-making. Nurse-led initiatives, such as advanced practice nursing roles and nurse-managed clinics, can significantly alleviate the burden on healthcare systems while improving access to care. Furthermore, addressing concerns related to nurse burnout and job satisfaction can enhance retention rates and ultimately lead to a more stable and effective nursing workforce [6].

In emergency care settings, timely intervention is critical. The integration of disaster preparedness programs and advanced triage systems can enhance the efficiency and effectiveness of emergency departments. Additionally, leveraging telehealth services in emergency care can provide immediate access to specialist input, thereby optimizing the

management of acute cases. Furthermore, focusing on community outreach programs and preventive care strategies can significantly reduce the incidence of medical emergencies, leading to overall improvements in public health [7].

The role of pharmacists is evolving beyond traditional medication dispensing to encompass a more clinical focus, including medication management, patient counseling, and health screenings. Enhancing pharmacy services through collaborative practices with hospital staff and the implementation of medication therapy management can improve therapeutic outcomes and patient safety. Moreover, engaging pharmacists in clinical decision-making processes ensures that medication therapies are aligned with the best available evidence, ultimately reducing adverse drug reactions and healthcare costs [8].

Effective health administration is fundamental in coordinating the myriad functions within healthcare settings. By adopting evidence-based management practices and strategic planning, healthcare leaders can optimize resource allocation and improve overall organizational performance. Furthermore, health informatics plays a crucial role in enhancing administrative efficiency. The implementation of robust EHR systems facilitates better data management, which in turn informs decision-making processes and empowers healthcare providers with valuable patient insights [9].

In an increasingly interconnected world, health security has emerged as a pivotal concern. Enhancing security measures in healthcare settings—addressing both physical and cyber threats—is essential to safeguard patient data and maintain public trust. Coordinated efforts at various levels, including policy formulation and community engagement, play a crucial role in bolstering health security against potential health crises, ranging from disease outbreaks to bioterrorism threats [10].

Lastly, the financial sustainability of healthcare organizations hinges on effective revenue generation strategies. As reimbursement models evolve from fee-for-service to value-based care, healthcare providers must identify new avenues of revenue while ensuring high-quality patient care. Strategies such as diversifying service offerings, optimizing operational efficiencies, and exploring alternative funding sources can bolster financial

viability. Financial management systems that integrate technology and data analytics can assist in identifying trends and managing costs more effectively [11].

The Importance of Collaboration in Healthcare

Historically, healthcare delivery has often been characterized by a siloed approach, wherein professionals within various disciplines operated independently. While this model sufficed in simpler patient scenarios, it has proven inadequate in the face of modern healthcare challenges, such as chronic diseases and multifaceted social determinants of health. As knowledge across specialties has expanded, the limitations of fragmented care have become increasingly evident. The shift towards collaborative practices is, in many ways, a response to the need for a more holistic view of patient care [12].

Interdisciplinary collaboration involves bringing together professionals from diverse fields to work towards a common goal: the health and well-being of the patient. This approach includes coordinated care, shared decision-making, and the integration of multiple perspectives, thereby allowing healthcare teams to address the varying dimensions of patient needs. For instance, the management of diabetes requires input not only from physicians but often from dietitians, nurse educators, mental health counselors, and pharmacists. Each professional contributes a unique perspective that aids in the development of a comprehensive care plan [13].

Benefits of Interdisciplinary Collaboration

- Enhanced Patient Care:** One of the most significant benefits of interdisciplinary collaboration is the enhancement of patient care. When healthcare professionals work together, they can identify and address a patient's needs more thoroughly. For instance, in managing a patient with heart failure, cardiologists, dietitians, and rehabilitation specialists can create a more effective care strategy tailored to the patient's unique circumstances. This collective approach can lead to fewer complications, lower readmission rates, and improved health outcomes [14].
- Improved Patient Satisfaction:** Patients today expect a healthcare experience that prioritizes their needs and preferences. Collaborative care models often lead to better communication between

providers, which can enhance patient satisfaction. When patients see that their health concerns are being addressed by a cohesive team, they feel more cared for and understood. Engaging patients in shared decision-making—a hallmark of collaborative care—also empowers them, fostering a sense of control over their health decisions [15].

3. **Cost Efficiency:** By reducing redundancies and streamlining communication between specialties, interdisciplinary collaboration can lead to significant cost savings. Coordinated care minimizes unnecessary tests, duplicate procedures, and fragmented services, ultimately reducing healthcare costs. For healthcare systems, effective team collaboration can enhance resource allocation and optimize utilize available technologies and treatment plans [16].

4. **Continuous Learning and Improvement:** Collaboration fosters an environment of mutual learning among professionals. As team members share insights and experiences, they can collectively enhance their knowledge and skills. This ongoing education dynamic not only benefits the healthcare providers but also translates into better-informed patient care practices. Moreover, it can lead to innovations in treatment strategies, guidelines, and protocols that respond to the evolving landscape of healthcare [17].

Despite the clear advantages, achieving effective collaboration in healthcare is fraught with challenges. Professional hierarchies and traditional power dynamics can impede open communication, leading to frustration and inefficiencies. Moreover, differing philosophies regarding patient care among various disciplines can create conflict. These issues may be compounded by institutional barriers, such as incompatible electronic health records or inadequate support for team-based structures [18].

Furthermore, time constraints in busy clinical settings can limit the opportunities for collaborative discussions. It is crucial for healthcare organizations to actively work towards breaking down these barriers. This can involve training and development programs focused on teamwork, communication skills, and conflict resolution techniques to foster a collaborative spirit among staff [19].

Adopting an interdisciplinary approach requires systemic changes at various levels within healthcare organizations. Implementing viable structures for

effective teamwork—such as regular interdisciplinary meetings or team-based care protocols—can facilitate smoother collaboration. Equally important is the establishment of policies that reward collaborative efforts, such as performance metrics that gauge team efficiency and patient outcomes [20].

Moreover, embracing technology is critical in fostering collaboration. Integrated electronic health records allow for seamless information exchange, ensuring that all members of the healthcare team have access to the same information. Telehealth technologies also offer opportunities for real-time collaboration and consultation among team members, particularly in remote or specialized care scenarios [21].

As healthcare continues to evolve, the move towards collaborative models will likely intensify. The integration of artificial intelligence and data analytics promises to enhance interdisciplinary practice by aiding in decision-making processes. These advancements can empower teams to utilize real-time data to tailor patient care more effectively [22].

Benefits of Integrated Services in Patient Care

An essential advantage of integrated services in patient care is enhanced communication among healthcare providers. Traditionally, patients often encountered a fragmented system where different specialists and general practitioners operated in silos, leading to miscommunication, overlapping of services, and even conflicting treatment plans. Integrated services dismantle these barriers to communication, enabling healthcare professionals to share essential patient information promptly and effectively [23].

Through shared electronic health records (EHRs) and other digital communication platforms, medical teams can access a unified view of a patient's medical history, ongoing treatments, and medication regimens. This transparency not only aids in clinical decision-making but also fosters trust between patients and their caregivers. Patients are more likely to feel engaged in their care when they see their providers working collaboratively, which can lead to increased adherence to treatment plans and ultimately better health outcomes [24].

Streamlined Processes

Streamlining processes is another critical benefit of integrated services. Healthcare systems that emphasize integration minimize redundancies, reduce wait times, and enhance operational efficiency. This is achieved through coordinated scheduling, cross-disciplinary consultations, and adherence to uniform treatment protocols [21].

For instance, consider a patient diagnosed with diabetes who requires regular check-ups and specialized care from an endocrinologist, nutritionist, and possibly a foot care specialist. In a fragmented care model, this patient may struggle with scheduling appointments across multiple providers, leading to delays in obtaining essential care and management of their condition. Conversely, an integrated approach allows for easier coordination of appointments and faster referrals between specialists, ensuring that the patient consistently receives the necessary care without unnecessary delays [25].

Moreover, streamlined processes contribute to better resource allocation. Integrated systems allow healthcare organizations to identify gaps in services and allocate staff and resources more effectively. By sharing the workload across specialists, healthcare facilities can cater to more patients, optimize the utilization of resources, and ultimately reduce healthcare costs for both providers and patients [26].

Shared Resources

Shared resources within integrated services further emphasize the importance of collaboration in patient care. Healthcare providers can efficiently pool their resources, expertise, and equipment, leading to greater cost-effectiveness and reduced waste. For example, a diagnostic imaging center that partners with multiple hospitals can share sophisticated imaging technology, leading to collective savings and better access to advanced diagnostic tools for all partnered facilities [27].

Additionally, in the context of research and clinical trials, integration promotes the sharing of knowledge and best practices among professionals. When healthcare organizations collaborate, they can leverage shared data to conduct research, refine treatment methodologies, and explore innovative solutions to prevalent health challenges. Such collaborative efforts can lead to improved treatment

protocols that benefit a larger population, driving forward advancements in patient care [28].

Enhanced Patient Outcomes

Ultimately, the integration of services in patient care culminates in enhanced patient outcomes. When healthcare providers communicate effectively, streamline processes, and share resources, patients experience a more holistic approach to their care. Research has shown that integrated care models lead to improved management of chronic diseases, fewer hospital admissions, and reduced healthcare costs. Patients benefit from the collaboration among various specialists, who can adopt a comprehensive view of their health struggles [29].

Moreover, integrated services embrace preventive care as a core philosophy. By focusing on disease prevention and early intervention, these services prioritize overall health and wellness, rather than merely treating symptoms as they arise. For instance, by incorporating mental health services within primary care settings, providers can address the psychosocial factors that contribute to physical ailments, leading to more effective treatment plans and improved long-term health outcomes [30].

Challenges Faced in Interprofessional Collaboration

Communication Barriers

One of the foremost challenges in interprofessional collaboration is communication barriers. Effective communication is fundamental for successful teamwork; however, various factors can impede the clear and concise exchange of information among healthcare professionals. First and foremost, the use of discipline-specific jargon can create a communication gap. Each profession has its unique terminology, and when members of different disciplines rely on their respective lexicons, misunderstandings can occur, resulting in fragmented care and potential adverse outcomes. For example, a physician may refer to a patient's condition using medical terms that a nurse, dietitian, or social worker might not fully understand, leading to misinterpretations of the treatment required [31].

Furthermore, differences in communication styles can complicate interactions. Professionals from varying backgrounds may have distinct approaches to conveying information, which can lead to frustration and inefficiency. For instance, some

healthcare team members may prefer direct and succinct communication, while others might adopt a more descriptive and detailed approach. The lack of a standardized communication protocol can exacerbate these differences, ultimately hampering collaboration [32].

Moreover, technological barriers can also hinder effective communication. While electronic health records (EHRs) and telecommunication technology have the potential to enhance information sharing, the lack of interoperability among various systems can result in misinformation or incomplete patient records. When healthcare professionals are unable to access or exchange vital patient data readily, it can lead to delays in care and misunderstandings about treatment plans [33].

Differing Professional Cultures

Another significant challenge to interprofessional collaboration is the differing professional cultures that characterize various healthcare disciplines. Each profession—such as medicine, nursing, pharmacy, social work, and physical therapy—has its norms, values, and expectations. These cultural differences can create silos, where individuals become entrenched in their practices and reluctant to engage with colleagues from other professions. For instance, physicians are often seen as leaders within healthcare teams and may inadvertently dominate discussions, while nurses and other support staff may feel marginalized or hesitant to assert their perspectives [34].

This hierarchical perception can lead to an "us versus them" mentality, which can stifle collaboration and create tension among team members. When professionals do not value the contributions of their colleagues, it becomes difficult to foster a collaborative atmosphere. Additionally, role ambiguity can arise when team members do not have a clear understanding of each other's responsibilities and scope of practice. This lack of clarity can lead to duplicated efforts, missed opportunities for collaboration, and confusion regarding patient care [35].

Furthermore, differing educational backgrounds contribute to this challenge. Healthcare professionals often undergo distinct training that shapes their thought processes and approaches to problem-solving. For example, medical training focuses heavily on diagnostic processes and

treatment protocols, while nursing education emphasizes holistic patient care and emotional support. These differing perspectives can lead to discord when addressing patient needs, as professionals may prioritize different aspects of care based on their training [36].

Resistance to Change

Resistance to change is another prominent barrier to interprofessional collaboration in healthcare settings. Many healthcare professionals are entrenched in established routines and practices that they have grown comfortable with over time. Introducing new collaborative models often requires individuals to step outside their comfort zones, adapt to new roles, and embrace changes in workflow. Such transformations can evoke anxiety, fear, and skepticism among team members, particularly if they do not see immediate benefits or if their workload increases without apparent clarity [37].

Additionally, insufficient leadership support can exacerbate this resistance. When organizational leaders do not actively promote interprofessional collaboration or fail to provide adequate resources for its implementation, team members may perceive collaboration as an optional or unnecessary component of their practice. This lack of endorsement can lead to disengagement and reluctance to commit to new collaborative efforts [38].

Cultural change within organizations is also a slow and challenging process. In many healthcare facilities, the culture may prioritize individual performance and accountability over team-based collaboration. Shifting this mindset to prioritize collective outcomes and team success requires significant effort and commitment from leadership, as well as a willingness from staff members to embrace new ways of working together [39].

Financial Implications of Interdisciplinary Cooperation in Healthcare

Firstly, interdisciplinary cooperation fundamentally transforms resource allocation within healthcare settings. In traditional models, silos often exist between departments, leading to duplicated efforts and wasted resources. For instance, individual departments may undertake similar patient education initiatives or diagnostic tests without knowledge of overlapping activities, which

frequently results in excessive expenditures and inefficient use of human and financial resources. By fostering collaboration across various specialties, healthcare organizations can combine their insights, leading to more streamlined processes and the elimination of redundant services [40].

Consider the example of a hospital where both cardiology and nephrology departments provide patient education on hypertension management independently. By uniting their efforts, these departments can develop a unified educational program, effectively conveying vital information while minimizing costs associated with printing materials, conducting seminars, and allocating staff time. This kind of cooperative spirit can create a ripple effect—a broader approach to patient education that not only reduces administrative overhead but also enhances the quality of care through consistent messaging [41].

Moreover, interdisciplinary collaboration allows for the sharing of state-of-the-art technology and resources that may otherwise remain underutilized. For example, if a radiology department invests in advanced imaging technology, including MRI machines or ultrasound, the overall cost incurred can be mitigated if multiple departments, including oncology and orthopedics, leverage these capabilities instead of each investing in their equipment. This strategic sharing of expensive resources can lead to significant cost savings across the board [42].

Enhanced Revenue Generation Through Integrated Services

Beyond direct cost savings, interdisciplinary teamwork can foster revenue growth through integrated services that improve patient outcomes and satisfaction. The Institute for Healthcare Improvement has consistently demonstrated that coordinated care not only improves patient health but also enhances loyalty and retention, critical factors in revenue generation. When multiple specialists collaborate to provide comprehensive care, patients are more likely to experience favorable outcomes and thus remain with a healthcare provider or system [43].

For instance, a healthcare institution might implement a multidisciplinary care team for managing chronic diseases, incorporating physicians, dietitians, social workers, and

pharmacists. This model of care can result in fewer hospital readmissions, better chronic disease management, and a potential boost in patient volumes as satisfied patients refer others to the health organization. Health systems are often rewarded for reducing readmission rates and enhancing overall patient experience through value-based reimbursement frameworks, further driving revenue [44].

Additionally, the provision of integrated care services positions healthcare organizations to capture new revenue streams. Value-based care, which incentivizes positive health outcomes rather than the volume of services provided, is becoming the standard in many healthcare settings. Interdisciplinary cooperation allows organizations to develop comprehensive treatment plans that align closely with these goals. Consequently, a hospital that shifts toward an integrated, team-based approach may qualify for improved reimbursement rates and performance bonuses, ultimately leading to enhanced profitability [45].

Reduction of Malpractice Costs and Improved Risk Management

Another less apparent but significant financial advantage of interdisciplinary cooperation is its potential to reduce malpractice costs through improved patient safety and communication. High rates of malpractice claims not only escalate costs for healthcare organizations but also affect overall financial stability. Interdisciplinary teams can standardize practices and protocols, decreasing variability in care and minimizing the risk of errors [46].

For example, when a surgical team comprises surgeons, anesthesiologists, nursing staff, and postoperative care professionals working together from pre-operative to post-operative phases, the potential for miscommunication and error is significantly reduced. This coordinated effort can lead to lower incidences of complications, which in turn minimizes litigation risks and the resultant costs associated with malpractice insurance and legal fees [47].

Conclusion

In summary, the myriad components of contemporary medical practices—covering anesthesia, laboratory services, nursing, emergency

care, pharmacy, health administration, health informatics, health security, and revenue generation—are inextricably linked. Enhancing these areas requires a multi-faceted approach that promotes training and education, fosters innovation, and prioritizes interprofessional collaboration. As the healthcare field continues to advance, dedicated efforts toward improving these domains will be instrumental in delivering high-quality, efficient, and sustainable care to diverse populations in the ever-evolving medical landscape.

References:

1. Bajnok I, Puddester D, Macdonald CJ, Archibald D, Kuhl D. Building positive relationships in healthcare: evaluation of the Teams of Interprofessional Staff interprofessional education program. *Contemp Nurse*. 2012;42(1):76-89. doi: 10.5172/conu.2012.42.1.76
2. Tremblay D, Roberge D, Touati N, Maunsell E, Berbiche D. Effects of interdisciplinary teamwork on patient-reported experience of cancer care. *BMC Health Serv Res*. 2017;17(1):218. doi: 10.1186/s12913-017-2166-7
3. Singer S, Shortell SM. Implementing accountable care organizations: ten potential mistakes and how to learn from them. *JAMA*. 2011;306(7):758-759. doi: 10.1001/jama.2011.1180
4. Hall P, Weaver L. Interdisciplinary education and teamwork: a long and winding road. *Med Educ*. 2001;35(9):867-875. doi: 10.1046/j.1365-2923.2001.00919.x
5. Kock L, Mlezana NB, Frantz JM. Perceptions, attitudes and understanding of health professionals of interprofessional practice at a selected community health centre. *Afr J Prim Health Care Fam Med*. 2021;13(1):e1-e6. doi: 10.4102/phcfm.v13i1.2724
6. Ramirez V, Lindberg M, Withy KM, Yamada S. The effect of community-based, interdisciplinary training on the careers of physicians. *J Interprof Care*. 2005;19(2):171-172. doi: 10.1080/13561820500081109
7. Rodts MF. Nurse-physician collaboration. *Orthop Nurs*. 2008;27(2):93. doi: 10.1097/01.NOR.0000315620.13643.80
8. Hilton IV. Interdisciplinary collaboration: what private practice can learn from the health center experience. *J Calif Dent Assoc*. 2014;42(1):29-34.
9. Jansen L. Collaborative and interdisciplinary health care teams: ready or not? *J Prof Nurs*. 2008;24(4):218-227. doi: 10.1016/j.profnurs.2007.06.013
10. Ciemins EL, Brant J, Kersten D, Mullette E, Dickerson D. Why the interdisciplinary team approach works: insights from complexity science. *J Palliat Med*. 2016;19(7):767-770. doi: 10.1089/jpm.2015.0398
11. Müller C, Plewnia A, Becker S, Rundel M, Zimmermann L, Körner M. Expectations and requests regarding team training interventions to promote interdisciplinary collaboration in medical rehabilitation—a qualitative study. *BMC Med Educ*. 2015;15:135. doi: 10.1186/s12909-015-0413-3
12. Colton JS, Surasinghe TD. Using collaboration between English and biology to teach scientific writing and communication. *J Coll Sci Teach*. 2014; 44(2):31-39. doi: 10.2505/4/jcst14_044_02_31
13. Kaufman BG, Spivack BS, Stearns SC, Song PH, O'Brien EC. Impact of accountable care organizations on utilization, care, and outcomes: a systematic review. *Med Care Res Rev*. 2019;76(3):255-290. doi: 10.1177/1077558717745916
14. Van Houtven CH, Hastings SN, Colón-Emeric C. A path to high-quality team-based care for people with serious illness. *Health Aff (Millwood)*. 2019;38(6):934-940. doi: 10.1377/hlthaff.2018.05486
15. Petri L. Concept analysis of interdisciplinary collaboration. *Nurs Forum*. 2010;45(2):73-82. doi: 10.1111/j.1744-6198.2010.00167.x
16. Shortell SM, Casalino LP. Health care reform requires accountable care systems. *JAMA*. 2008;300(1):95-97. doi: 10.1001/jama.300.1.95

17. Kerrissey MJ, Clark JR, Friedberg MW, et al. Medical group structural integration may not ensure that care is integrated, from the patient's perspective. *Health Aff (Millwood)*. 2017;36(5):885-892. doi: 10.1377/hlthaff.2016.0909
18. Hodiamont F, Jünger S, Leidl R, Maier BO, Schildmann E, Bausewein C. Understanding complexity—the palliative care situation as a complex adaptive system. *BMC Health Serv Res*. 2019;19(1):157. doi: 10.1186/s12913-019-3961-0
19. Colón-Emeric CS, Pinheiro SO, Anderson RA, et al. Connecting the learners: improving uptake of a nursing home educational program by focusing on staff interactions. *Gerontologist*. 2014;54(3):446-459. doi: 10.1093/geront/gnt043
20. Ramphal L, Suzuki S, McCracken IM, Addai A. Improving hospital staff compliance with environmental cleaning behavior. *Proc (Bayl Univ Med Cent)*. 2014;27(2):88-91. doi: 10.1080/08998280.2014.11929065
21. Nancarrow S., Booth A., Ariss S., Smith T., Enderby P., Roots A. Ten principles of good interdisciplinary team work. *Hum. Resour. Health*. 2013;11:19. doi: 10.1186/1478-4491-11-19.
22. Karkowski T. Dostosowywanie zasobów kadry medycznej do potrzeb starzejącego się społeczeństwa. *Zdr. Publiczne I Zarządzanie*. 2015;13:82–94.
23. Pannick S., Davis R., Ashrafian H., Byrne B.E., Beveridge I., Athanasiou T., Wachter R.M., Sevdalis N. Effects of interdisciplinary team care interventions on general medical wards: A systematic review. *JAMA Intern. Med*. 2015;175:1288–1298. doi: 10.1001/jamainternmed.2015.2421.
24. Van Der Vegt G.S., Bunderson J.S. Learning and performance in multidisciplinary teams: The importance of collective team identification. *Acad. Manag. J*. 2005;48:532–547. doi: 10.5465/amj.2005.17407918.
25. Addington-Hall J.M., O'Callaghan A.C. A comparison of the quality of care provided to cancer patients in the UK in the last three months of life in in-patient hospices compared with hospitals, from the perspective of bereaved relatives: Results from a survey using the VOICES questionnaire. *Palliat. Med*. 2009;23:190–197. doi: 10.1177/0269216309102525.
26. Kucukarslan S.N., Peters M., Mlynarek M., Nafziger D.A. Pharmacists on rounding teams reduce preventable adverse drug events in hospital general medicine units. *Arch. Intern. Med*. 2003;163:2014–2018. doi: 10.1001/archinte.163.17.2014.
27. Soifer N.E., Borzak S., Edlin B.R., Weinstein R.A. Prevention of peripheral venous catheter complications with an intravenous therapy team: A randomized controlled trial. *Arch. Intern. Med*. 1998;158:473–477. doi: 10.1001/archinte.158.5.473.
28. O'Leary K.J., Buck R., Fligel H.M., Haviley C., Slade M.E., Landler M.P., Kulkarni N., Hinami K., Lee J., Cohen S.E., et al. Structured interdisciplinary rounds in a medical teaching unit: Improving patient safety. *Arch. Intern. Med*. 2011;171:678–684. doi: 10.1001/archinternmed.2011.128.
29. Hall P., Weaver L. Interdisciplinary education and teamwork: A long and winding road. *Med. Educ*. 2001;35:867–875. doi: 10.1046/j.1365-2923.2001.00919.x.
30. Lemieux-Charles L., McGuire W.L. What do we know about health care team effectiveness? A review of the literature. *Med. Care Res. Rev*. 2006;63:263–300. doi: 10.1177/1077558706287003.
31. Siouta N., Van Beek K., Van der Eerden M.E., Preston N., Hasselaar J.G., Hughes S., Garralda E., Centeno C., Csikos A., Groot M., et al. Integrated palliative care in Europe: A qualitative systematic literature review of empirically-tested models in cancer and chronic disease. *BMC Palliat. Care*. 2016;15:56. doi: 10.1186/s12904-016-0130-7.
32. Sinsky C., Willard-Grace R., Schutzbank A., Sinsky T.A., Margolius D., Bodenheimer T. In search of joy in practice: A report of 23 high-functioning primary care practices. *Ann. Fam. Med*. 2013;11:272–278. doi: 10.1370/afm.1531.

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33. Bodheimer T., Sinsky C. From triple to quadruple aim: Care of the patient requires care of the provider. *Ann. Fam. Med.* 2014;12:573–576. doi: 10.1370/afm.1713.
34. Grądalski T., Sojka J., Straszak K. Koszty opieki nad chorymi z nowotworem złośliwym u kresu życia na oddziale wewnętrznym szpitala i w hospicjum stacjonarnym. *Med. Paliatywna/Palliat. Med.* 2017;9:89–97.
35. Littlechild B., Smith R. *A Handbook for Interprofessional Practice in the Human Services: Learning to Work Together.* Routledge; London, UK: 2013. p. 15.
36. World Health Organization. *Framework for Action on Interprofessional Education and Collaborative Practice.* World Health Organization; Geneva, Switzerland: 2010.
37. Modlińska A. Palliative care—Interdisciplinary in nature. *Med. Paliatywna/Palliat. Med.* 2013;5:157–162.
38. Katkin J.P., Kressly S.J., Edwards A.R., Perrin J.M. Guiding principles for team-based pediatric care. *Pediatrics.* 2017;140:e20171489. doi: 10.1542/peds.2017-1489.
39. Taczała J., Wolińska O., Becher J., Majcher P. Interdyscyplinarny model leczenia dzieci z mózgowym porażeniem dziecięcym w Polsce. *Rekomendacje Sekcji Rehabilitacji Dzieci i Młodzieży Polskiego Towarzystwa Re*
40. Hsu H.T., Chiang Y.C., Lai Y.H., Lin L.Y., Hsieh H.F., Chen J.L. Effectiveness of Multidisciplinary Care for Chronic Kidney Disease: A Systematic Review. *Worldviews Evid.-Based Nurs.* 2021;18:33–41. doi: 10.1111/wvn.12483.
41. Zavlin D., Jubbal K.T., Noe J.G., Gansbacher B. A comparison of medical education in Germany and the United States: From Applying to Medical School to the Beginnings of Residency. *Ger. Med. Sci.* 2017;15:15. doi: 10.3205/000256.
42. Didier A., Dzemaili S., Perrenoud B., Campbell J., Gachoud D., Serex M., Staffoni-Donadini L., Franco L., Benaroyo L., Maya Z.S. Patients' perspectives on interprofessional collaboration between health care professionals during hospitalization: A qualitative systematic review. *JBISIRIR-D-19-00121.* 2020;18:1208–1270. doi: 10.11124/JBISIRIR-D-19-00121.
43. Yano K., Ohashi K. Interprofessional team approach to infertility treatment in Japan. *Reprod. Med. Biol.* 2009;9:33–41. doi: 10.1007/s12522-009-0038-5.
44. Clarkson P., Worsley P.R., Schoonhoven L., Bader D.L. An interprofessional approach to pressure ulcer prevention: A knowledge and attitudes evaluation. *J. Multidiscip. Healthc.* 2019;12:377–386. doi: 10.2147/JMDH.S195366.
45. Curran V.R., Sharpe D., Forristall J., Flynn K. Attitudes of health sciences students towards interprofessional teamwork and education. *Learn. Health Soc. Care.* 2008;7:146–156. doi: 10.1111/j.1473-6861.2008.00184.x.
46. Pillay B., Wootten A.C., Crowe H., Corcoran N., Tran B., Bowden P., Crowe J., Costello A.J. The impact of multidisciplinary team meetings on patient assessment, management and outcomes in oncology settings: A systematic review of the literature. *Cancer Treat. Rev.* 2016;42:56–72. doi: 10.1016/j.ctrv.2015.11.007.
47. Gregory N.S., Seley J.J., Dargar S.K., Galla N., Gerber L.M., Lee J.I. Strategies to prevent readmission in high-risk patients with diabetes: The importance of an interdisciplinary approach. *Curr. Diabetes Rep.* 2018;18:54. doi: 10.1007/s11892-018-1027-z.